REMARKS

Claims 19-32 are pending in the current application. In an office action dated December 30, 2009 ("Office Action"), the Examiner rejected claims 19, 24-26, and 30-32 under 35 U.S.C. §102(e) as being anticipated by Lemma et al., U.S. Patent No. 7,266,466 ("Lemma"). In addition, the Examiner conditionally allowed claims 20-23 and 27-29. Applicants respectfully traverse the 35 U.S.C. §102(e) rejection of claims 19, 24-26, and 30-32, below. Applicants wish to thank the Examiner for the conditional allowance of claims 20-23 and 27-29, but wish to defer rewriting these claims in independent form, at the current time.

As suggested by the title of the current application, "Enhanced Denoising System," the currently claimed "apparatus for denoising an input noisy signal" is directed to denoising received noisy signals to output denoised signals corresponding to the received noisy signals. Noisy signals are signals that have been transmitted through a communications medium, stored and retrieved from a mass-storage device, or similarly affected by electronic systems that convert certain of the original-signal symbols to different, noisy signals as a result of errors in the communications medium or other electronic system. This is explained in the background-of-the-invention section of the current application that begins on line 10 of page 1 of the current application.

By contrast, Lemma is concerned with rescaling the frame sequence of a received signal, as described in Lemma's abstract:

> Method and apparatus are described for compensating for a linear time scale change in a received signal, so as to correctly rescale the frame sequence of the received signal. Firstly, an initial estimate of the sequence of symbols is extracted from the received signal. Successive estimates of correctly time scaled sequences of the symbols are then generated by interpolating the values of the initial estimates.

In particular, as stated beginning on line 10 of column 1 in Lemma, Lemma is concerned with decoding information embedded in information signals, such as audio or video signals, which comprises a watermark:

> The present invention relates to apparatus and methods for decoding information that has been embedded in information signals, such as audio, video or data signals.
>
> Watermarking of information signals is a technique for the transmission of additional data along with the information signal. For instance, watermarking techniques can be used to embed copyright and copy control information into audio signals.

The link between watermark extraction and rescaling of frame sequences with respect to time is provided in the paragraph that begins on line 29 of column 1:

> In digital devices, it is typically assumed that there exists up to a 1% drift in sampling (clock) frequency. During transmission of the signal through an analog channel, this drift is normally manifested as a stretch or shrink in the time domain signal (i.e. a linear time scale change). A watermark embedded in the time domain (e.g. in an audio signal) will be affected by this time stretch or shrink as well, which can make watermark detection very difficult or even impossible. This, in the implementation of a robust watermarking scheme, it is extremely important to find solutions to such time scale modifications.

Clearly, the current application is directed to entirely different subject matter than that to which Lemma is directed. The current application is directed to a system and method by which noisy symbols are detected in a noisy sequence and replacement symbols are substituted for the detected noisy symbols in order to produce a denoised signal that is as close as possible to the original signal. By contrast, Lemma is concerned with time rescaling, principally of analog signals. Lemma does not teach, mention, or even remotely suggest an apparatus for denoising an input noisy signal or a "method for denoising a noisy signal and partially corrected signal to generate an output signal." Instead, Lemma is concerned with extracting encoded watermark information from an input signal.

In the rejection of claim 19, the Examiner cites Figure 8 as disclosing "an apparatus for denoising an input noisy signal." Figure 8 is entitled: "Watermark symbol

Extraction stage." In column 3 of Lemma, Lemma describes Figure 8 as "a diagram illustrating a watermark detector in accordance with an embodiment of the present invention." Clearly, Figure 8 does not teach, mention, or suggest "an apparatus for denoising an input noisy signal."

In the rejection of claim 19, the Examiner cites lines 37-40 of column 8 as teaching a received noisy signal. However, that passage of Lemma discusses "the noisy part of the energy function E[m]." By "noisy part," Lemma is referring to the rapidly varying part of the energy function, in contrast to the "slowly varying part" discussed in the following sentence. The energy function E[m] is a computed function that associates a computed numerical value to each signal frame within a portion of a signal, one numerical value per frame. The energy function E[m] is not, and is not in any way related to, a "noisy signal z that includes a number of sequentially ordered symbols." The expression for the energy function E[m] is provided as equation 11 in column 7, and the function is described in the paragraph that begins on line 50 of column 7. Thus, the citation to lines 37-40 of column 8 makes no sense.

The Examiner refers to a notation Y_b as "a number of sequentially ordered symbols" included within a noisy signal, but provides no reference to any passage or figure in Lemma that indicates this to be the case. Moreover, as discussed above, the energy function E[m] is a function, not a signal, and the function associates a numerical value with each frame of a signal. The energy function does not include sequentially ordered symbols. The Examiner cites Figure 12 for the proposition that each symbol in what the Examiner has incorrectly asserted to be a sequentially ordered set of symbols Y_b, has a position, Figure 12 teaches nothing regarding Y_b. Lemma states, in column 11, beginning on line 19, that Figure 12 "illustrates four buffers (B1, B2, B3, and B4), each buffer shown as a row of boxes, with each box within a row indicating a separate location within the respective buffer." Figure 12 would appear to have nothing whatsoever to do with sequentially ordered symbols. The remaining citations made by the Examiner with respect to claim 19 appear to be equally nonsensical. Similar citations are made with respect to claim 26, beginning on the bottom of page 3 of the Office Action.

Lemma is unrelated to the currently claimed invention and current

application. Extracting watermarks from a signal has nothing whatsoever to do with denoising noisy signals. The Examiner has failed to point to anything in Lemma regarding noisy signals or denoising of noisy signals. The Examiner's citations to various symbols and figures of Lemma are unrelated to the claim language with respect to which they are cited. In Applicants' representatives' respectfully offered opinion, Lemma provides no basis for any type of claim rejection, particularly a 35 U.S.C. §102 claim rejection, of the current claims.

In Applicants' representative's opinion, all of the claims remaining in the current application are clearly allowable. Favorable consideration and a Notice of Allowance are earnestly solicited.

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